



1

SEQUENCE LISTING

<110> BRINGMANN, PETER W.
FAULDS, DARYL
MITROVIC, BRANISLAVA
SRINIVASAN, SUBHA

<120> NOVEL FIBROBLAST GROWTH FACTORS

<130> BERLX 87

<140> 10/005,646

<141> 2001-12-07

<150> 60/251,837

<151> 2000-12-08

<160> 16

<170> PatentIn Ver. 2.1

<210> 1

<211> 636

<212> DNA

<213> Unknown Organism

<220>

<221> CDS

<222> (1) .. (633)

<220>

<223> Description of Unknown Organism: FGF-21 nucleotide
sequence

<400> 1

atg gct ccc tta gcc gaa gtc ggg ggc ttt ctg ggc ggc ctg gag ggc	48
Met Ala Pro Leu Ala Glu Val Gly Gly Phe Leu Gly Gly Leu Glu Gly	
1 5 10 15	
ttg ggc cag cag gtg ggt tcg cat ttc ctg ttg cct cct gcc ggg gag	96
Leu Gly Gln Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Gly Glu	
20 25 30	
cgg ccg ccg ctg ctg ggc gag cgc agg agc gcg gcg gag ccg agc gcg	144
Arg Pro Pro Leu Leu Gly Glu Arg Arg Ser Ala Ala Glu Arg Ser Ala	
35 40 45	
cgc ggc ggg ccg ggg gct gcg cag ctg gcg cac ctg cac ggc atc ctg	192
Arg Gly Gly Pro Gly Ala Ala Gln Leu Ala His Leu His Gly Ile Leu	
50 55 60	
cgc cgc cgg cag ctc tat tgc cgc acc ggc ttc cac ctg cag atc ctg	240
Arg Arg Arg Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu	
65 70 75 80	
ccc gac ggc agc gtg cag ggc acc cgg cag gac cac agc ctc ttc ggt	288
Pro Asp Gly Ser Val Gln Gly Thr Arg Gln Asp His Ser Leu Phe Gly	
85 90 95	

```

atc ttg gaa ttc atc agt gtg gca gtg gga ctg gtc agt att aga ggt 336
Ile Leu Glu Phe Ile Ser Val Ala Val Gly Leu Val Ser Ile Arg Gly
      100                      105                      110

gtg gac agt ggt ctc tat ctt gga atg aat gac aaa gga gaa ctc tat 384
Val Asp Ser Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Tyr
      115                      120                      125

gga tca gag aaa ctt act tcc gaa tgc atc ttt agg gag cag ttt gaa 432
Gly Ser Glu Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu
      130                      135                      140

gag aac tgg tat aac acc tat tca tct aac ata tat aaa cat gga gac 480
Glu Asn Trp Tyr Asn Thr Tyr Ser Ser Asn Ile Tyr Lys His Gly Asp
      145                      150                      155                      160

act ggc cgc agg tat ttt gtg gca ctt aac aaa gac gga act cca aga 528
Thr Gly Arg Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg
      165                      170                      175

gat ggc gcc agg tcc aag agg cat cag aaa ttt aca cat ttc tta cct 576
Asp Gly Ala Arg Ser Lys Arg His Gln Lys Phe Thr His Phe Leu Pro
      180                      185                      190

aga cca gtg gat cca gaa aga gtt cca gaa ttg tac aag gac cta ctg 624
Arg Pro Val Asp Pro Glu Arg Val Pro Glu Leu Tyr Lys Asp Leu Leu
      195                      200                      205

atg tac act tga
Met Tyr Thr
      210

```

```

<210> 2
<211> 211
<212> PRT
<213> Unknown Organism

```

```

<220>
<223> Description of Unknown Organism: FGF-21 amino acid
      sequence

```

```

<400> 2
Met Ala Pro Leu Ala Glu Val Gly Gly Phe Leu Gly Gly Leu Glu Gly
  1              5              10              15

Leu Gly Gln Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Gly Glu
      20              25              30

Arg Pro Pro Leu Leu Gly Glu Arg Arg Ser Ala Ala Glu Arg Ser Ala
      35              40              45

Arg Gly Gly Pro Gly Ala Ala Gln Leu Ala His Leu His Gly Ile Leu
      50              55              60

Arg Arg Arg Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu
      65              70              75              80

```

[illegible]

```
<210> 3
<211> 513
<212> DNA
<213> Unknown Organism
```

```
<220>
<221> CDS
<222> (1) .. (510)
```

<220>
<223> Description of Unknown Organism: FGF-23 nucleotide
sequence

<400> 3																	
atg	cgc	cgc	cgc	ctg	tgg	ctg	ggc	ctg	gcc	tgg	ctg	ctg	ctg	gcg	cgg		48
Met	Arg	Arg	Arg	Leu	Trp	Leu	Gly	Leu	Ala	Trp	Leu	Leu	Leu	Ala	Arg		
1				5					10					15			
gcg	ccg	gac	gcc	gcg	gga	acc	ccg	agc	gcg	tcg	cgg	gga	ccg	cgc	agc		96
Ala	Pro	Asp	Ala	Ala	Gly	Thr	Pro	Ser	Ala	Ser	Arg	Gly	Pro	Arg	Ser		
			20					25					30				
tac	ccg	cac	ctg	gag	ggc	gac	gtg	cgc	tgg	cgg	cgc	ctc	ttc	tcc	tcc		144
Tyr	Pro	His	Leu	Glu	Gly	Asp	Val	Arg	Trp	Arg	Arg	Leu	Phe	Ser	Ser		
		35				40						45					

```

act cac ttc ttc ctg cgc gtg gat ccc ggc ggc cgc gtg cag ggc acc 192
Thr His Phe Phe Leu Arg Val Asp Pro Gly Gly Arg Val Gln Gly Thr
      50                      55                      60

cgc tgg cgc cac ggc cag gac agc atc ctg gag atc cgc tct gta cac 240
Arg Trp Arg His Gly Gln Asp Ser Ile Leu Glu Ile Arg Ser Val His
      65                      70                      75                      80

gtg ggc gtc gtg gtc atc aaa gca gtg tcc tca ggc ttc tac gtg gcc 288
Val Gly Val Val Val Ile Lys Ala Val Ser Ser Gly Phe Tyr Val Ala
                        85                      90                      95

atg aac cgc cgg ggc cgc ctc tac ggg tgc cga ctc tac acc gtg gac 336
Met Asn Arg Arg Gly Arg Leu Tyr Gly Ser Arg Leu Tyr Thr Val Asp
                        100                      105                      110

tgc agg ttc cgg gag cgc atc gaa gag aac ggc cac aac acc tac gcc 384
Cys Arg Phe Arg Glu Arg Ile Glu Glu Asn Gly His Asn Thr Tyr Ala
      115                      120                      125

tca cag cgc tgg cgc cgc cgc ggc cag ccc atg ttc ctg gcg ctg gac 432
Ser Gln Arg Trp Arg Arg Arg Gly Gln Pro Met Phe Leu Ala Leu Asp
      130                      135                      140

agg agg ggg ggg ccc cgg cca ggc ggc cgg acg cgg cgg tac cac ctg 480
Arg Arg Gly Gly Pro Pro Gly Gly Arg Thr Arg Arg Tyr His Leu
      145                      150                      155                      160

tcc gcc cac ttc ctg ccc gtc ctg gtc tcc tga 513
Ser Ala His Phe Leu Pro Val Leu Val Ser
                        165                      170

```

<210> 4

<211> 170

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-23 amino acid sequence

<400> 4

```

Met Arg Arg Arg Leu Trp Leu Gly Leu Ala Trp Leu Leu Leu Ala Arg
  1                      5                      10                      15

Ala Pro Asp Ala Ala Gly Thr Pro Ser Ala Ser Arg Gly Pro Arg Ser
      20                      25                      30

Tyr Pro His Leu Glu Gly Asp Val Arg Trp Arg Arg Leu Phe Ser Ser
      35                      40                      45

Thr His Phe Phe Leu Arg Val Asp Pro Gly Gly Arg Val Gln Gly Thr
      50                      55                      60

Arg Trp Arg His Gly Gln Asp Ser Ile Leu Glu Ile Arg Ser Val His
      65                      70                      75                      80

```


Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Val Asp Thr Gly Arg
145 150 155 160

Arg Tyr Tyr Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Glu Gly Thr
165 170 175

Arg Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
180 185 190

Asp Pro Asp Lys Val Pro Glu Leu Tyr Lys Asp Ile Leu Ser Gln Ser
195 200 205

<210> 6

<211> 207

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: FGF-16 amino acid
sequence

<400> 6

Met Ala Glu Val Gly Gly Val Phe Ala Ser Leu Asp Trp Asp Leu His
1 5 10 15

Gly Phe Ser Ser Ser Leu Gly Asn Val Pro Leu Ala Asp Ser Pro Gly
20 25 30

Phe Leu Asn Glu Arg Leu Gly Gln Ile Glu Gly Lys Leu Gln Arg Gly
35 40 45

Ser Pro Thr Asp Phe Ala His Leu Lys Gly Ile Leu Arg Arg Arg Gln
50 55 60

Leu Tyr Cys Arg Thr Gly Phe His Leu Glu Ile Phe Pro Asn Gly Thr
65 70 75 80

Val His Gly Thr Arg His Asp His Ser Arg Phe Gly Ile Leu Glu Phe
85 90 95

Ile Ser Leu Ala Val Gly Leu Ile Ser Ile Arg Gly Val Asp Ser Gly
100 105 110

Leu Tyr Leu Gly Met Asn Glu Arg Gly Glu Leu Tyr Gly Ser Lys Lys
115 120 125

Leu Thr Arg Glu Cys Val Phe Arg Glu Gln Phe Glu Glu Asn Trp Tyr
130 135 140

Asn Thr Tyr Ala Ser Thr Leu Tyr Lys His Ser Asp Ser Glu Arg Gln
145 150 155 160

Tyr Tyr Val Ala Leu Asn Lys Asp Gly Ser Pro Arg Glu Gly Tyr Arg
165 170 175

Thr Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val Asp
180 185 190

Pro Ser Lys Leu Pro Ser Met Ser Arg Asp Leu Phe His Tyr Arg
 195 200 205

<210> 7
 <211> 117
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: FGF-22

<220>
 <221> MOD_RES
 <222> (1)
 <223> Any amino acid

<400> 7
 Xaa Gly Met Leu Ala Ser Tyr Ser Val Ala Val Ala Met Val Thr Thr
 1 5 10 15
 Arg Gly Val Ala Ser Arg Leu Tyr Leu Asp Ser Asn His Lys Gly Asp
 20 25 30
 Leu Tyr Ala Ser Val Arg Leu Ala Gln Glu Ser Val Phe Trp Gly Gln
 35 40 45
 Ser Glu Glu Asn Trp Ser Tyr Thr His Ser Ser Asn Leu Tyr Lys His
 50 55 60
 Val Asp Thr Arg Arg Arg Tyr Tyr Val Pro Leu Asn Gln Gly Ala Thr
 65 70 75 80
 Pro Ser Ala Gly Thr Arg Ser Leu Arg Arg Gln Asn Tyr Thr His Val
 85 90 95
 Leu Pro Arg Pro Val Asp Pro Asp Lys Val Pro Glu Leu Tyr Lys Asp
 100 105 110
 Ile Leu Ser Gln Ser
 115

<210> 8
 <211> 208
 <212> PRT
 <213> Xenopus laevis

<400> 8
 Met Ala Pro Leu Ala Asp Val Gly Thr Phe Leu Gly Gly Tyr Asp Ala
 1 5 10 15
 Leu Gly Gln Val Gly Ser His Phe Leu Leu Pro Pro Ala Lys Asp Ser
 20 25 30
 Pro Leu Leu Phe Asn Asp Pro Leu Ala Gln Ser Glu Arg Leu Ser Arg
 35 40 45

Ser Ala Pro Ser Asp Leu Ser His Leu Gln Gly Ile Leu Arg Arg Arg
 50 55 60
 Gln Leu Tyr Cys Arg Thr Gly Phe His Leu Gln Ile Leu Pro Asp Gly
 65 70 75 80
 Asn Val Gln Gly Thr Arg Gln Asp His Ser Arg Phe Gly Ile Leu Glu
 85 90 95
 Phe Ile Ser Val Ala Ile Gly Leu Val Ser Ile Arg Gly Val Asp Thr
 100 105 110
 Gly Leu Tyr Leu Gly Met Asn Asp Lys Gly Glu Leu Phe Gly Ser Glu
 115 120 125
 Lys Leu Thr Ser Glu Cys Ile Phe Arg Glu Gln Phe Glu Glu Asn Trp
 130 135 140
 Tyr Asn Thr Tyr Ser Ser Asn Leu Tyr Lys His Gly Asp Ser Gly Arg
 145 150 155 160
 Arg Tyr Phe Val Ala Leu Asn Lys Asp Gly Thr Pro Arg Asp Gly Thr
 165 170 175
 Arg Ala Lys Arg His Gln Lys Phe Thr His Phe Leu Pro Arg Pro Val
 180 185 190
 Asp Pro Glu Lys Val Pro Glu Leu Tyr Lys Asp Leu Met Gly Tyr Ser
 195 200 205

<210> 9
 <211> 4
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 9
 Leu Tyr Gly Ser
 1

<210> 10
 <211> 4
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 10
 His Phe Leu Pro
 1

<210> 11
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 11
 Val Gln Gly Thr Arg
 1 5

<210> 12
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 12
 Arg Ile Glu Glu Asn Gly His Asn Thr Tyr
 1 5 10

<210> 13
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 13
 Gln Phe Glu Glu Asn Trp Tyr Asn Thr Tyr
 1 5 10

<210> 14
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Illustrative
 peptide

<400> 14
 Ala Gly Thr Pro Ser Ala
 1 5

<210> 15
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative
peptide

<400> 15
Ala Ala Glu Arg Ser Ala
1 5

<210> 16
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 6X His tag

<400> 16
His His His His His His
1 5